

GCW Bio Water - Effluent Treatment Solution

About GCW Bio Water

GCW Biowater is the most technologically advanced Plant Water based manufacturer in the world today using plant ions to manufacture Hexagonal Natural structure of water with Bio-Geometric and Magnetohydrodynamic principles. With patented technology, equipment and processes we are able to extract proven plant based extracts and have modified the water ions to bond effectively enabling a new "Plant Water" technology. Founded in Bloomfield Hills, Michigan in 2019 with a mission of solving modern pain points in the manufacturing and industrial economic backbones where even the most toughest chemicals are limited in their ability we were inspired by Mother Nature's unique technology of conservation and recycling ability to invent a better mouse trap.

The Mission

To Harness the Raw Untapped power of Mother Nature's Plant Ions to Protect our World's Oceans, Water streams and the betterment of Human and Animal Life for a safe sustainable future.

Challenge

The major sector of the industries produces immensely high amounts of acidic effluents with a direct discharge of the same from chemical processes which significantly reduces the service life of the piping systems and the pumps with increased costs and increased loads of the existing ETP units.

There were other issues with high level of COD and BOD leading to expensive neutralisation and remediation.

About GCW - Bio E-treat ET 153

Bio E-treat ET 153 is a higher bio engineered water alkaline ions that neutralise acidic liquid with greater stability. Bio E-treat when mixed with an effluent breaks down and disintegrates the contamination through hydrophilic action, most of which is the suspended particles and the chemicals which are present in the effluents to give a clear water solution.

Benefits

50 %  **Reduction in the consumption of lime / caustic for pH neutralisation**

40 %  **Reduced Sludge formation thereby reducing the risks of hazardous disposals**

12 x  **In Overall productivity as the neutralisation is done in 5 ~ 7 mins**

70 %  **Reduction in flocculants as Bio E treat acts as natural flocculant.**

2 x Overall Cost Benefits

Case Studies

We have done few trials at different industries to test the properties and results of bio etreat across India. For better understanding one such case study report is attached below

Case Study - ETP of Paint Industry

Objective - The objective of the trials were to treat and neutralise the Effluent sample with different combinations of lime and bio water dosage and to:

- Increase the pH
- Reduce the TDS
- Reduce the TSS

Equipment Used in trial

- Effluent Sample
- Bio water ETP Sample
- Lime powder
- TDS meter
- pH meter
- Beakers and Flasks

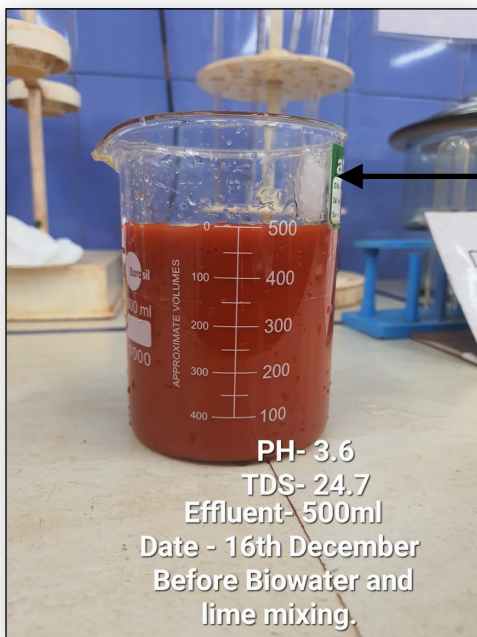
Trial 1 : Lime 0.2% constant

Effluent - 500 ml

Initial pH - 3.6

Initial TDS - 24.7 ppt

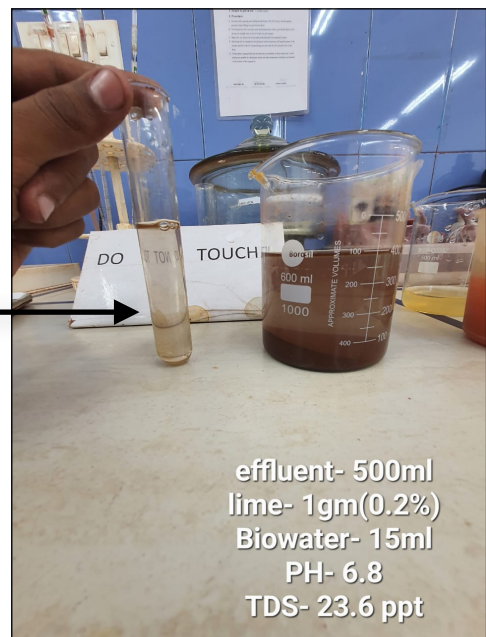
Bio Water	% Bio water	Lime 0.2%	Final pH	Final TDS (ppt)	TDS After Washing With tap water (ppt)
10 ml	2%	1 gm	6.6	23	10
15 ml	3%		6.8	23.6	9
20 ml	4%		6.4	23.2	14



Before

Original Effluent Sample

Clear Water Obtained



After

Process:

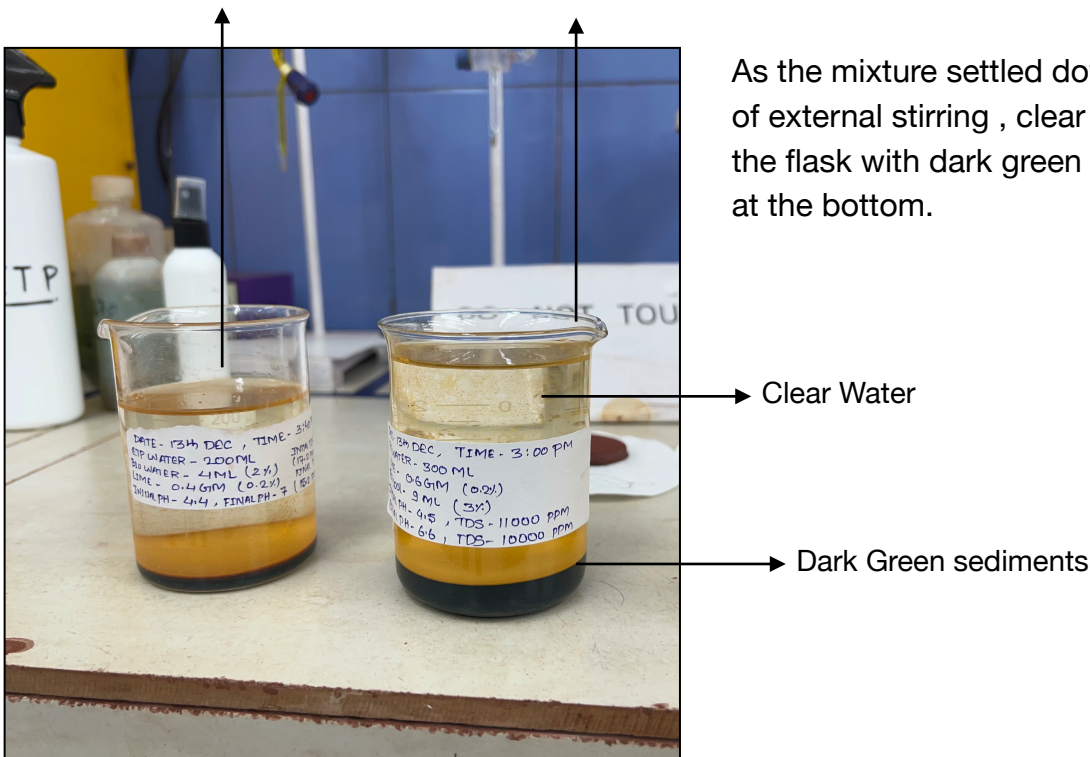
It was a simple process of mixing the effluent , lime powder and bio water in a clear flask and stirring the solution for 10 seconds and leaving the mixture to settle down. The same process was followed in all the trials.

Observations:

As we can see from and the pictures attached above and below , the effluent after treating with bio water and lime the solution is clear and the time taken to settle down completely was observed to be **7 minutes**.

With 2% bio water dosage

With 3% bio water dosage



Results

pH	Well within acceptable range	Successful
TSS	Clear solution was seen, suspended particles were eliminated	Successful

To improve the TDS we had to wash (mix) the distillate solution with equal amount of tap water 2 times.

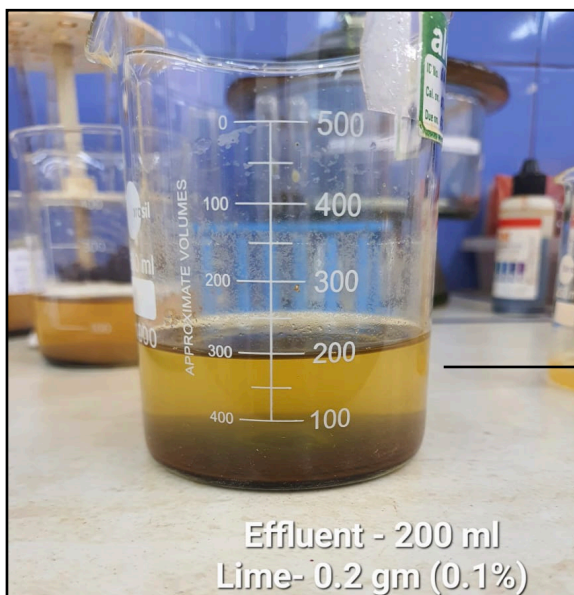
Trial 2 : Lime 0.1% constant

Effluent - 500 ml

Initial pH - 3.6

Initial TDS - 24.7 ppt

Bio Water	% Bio water	Lime 0.1%	Final pH	Final TDS (ppt)	TDS After Washing With tap water (ppt)
10 ml	2%	0.5 gm	6.7	22	10
15 ml	3%		7.1	21	9
20 ml	4%		7.2	23.2	10.55
25 ml	5%		7	22	10



The process of stirring the mixture was followed and after settling down in 6 -7 minutes of time, the dark green sediments were seen settled at the bottom but the water in the solution was **80% clear**

With 3% of bio water dosage

Results

pH	Well within acceptable range, normal water pH reading	Successful
TSS	80% clear solution was seen	80 % Successful

To improve the TDS we had to wash (mix) the distillate solution with equal amount of tap water 2 times.

Trial 3 : Only with bio water

Mixing ratio : 1 : 0.5

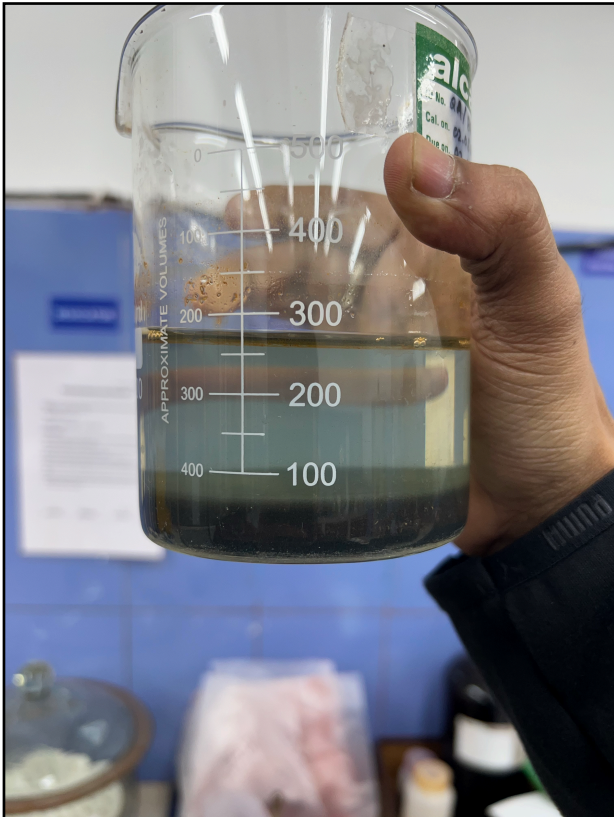
Effluent - 200 ml

Bio water - 100 ml

Initial pH - 4.5

Initial TDS - 11000 ppm

Final pH	Final TDS
6.1	9000 ppm



A clear solution was obtained.
Time taken to settle down - 15 mins
pH in limits

What is the dark greenish colour sediments that is settled at the bottom ??

Ans. - Bio water breaks down and disintegrates the chemicals/which are present in the effluent which over the period of time gets settled at the bottom.

Trial Intakes

- TDS reduction could be achieved presently to a satisfactory level only after washing/ mixing with normal water.
- 0.2% lime and 2% of bio water dosing showed the best results for neutralising the pH and TSS.
- We found that the time taken to neutralise the effluent with bio water was less than 10 mins which eventually impacts and reduces the total process time of the ETP.